

REMARKS

Claims 15 through 25 were presented for consideration and remain pending upon entry of the instant amendment. Claims 26 and 27 are new.

The Office Action objects to the disclosure as informal because of a technical aspect of the invention being referred to by a claim in the body of the specification. The specification has been amended to replace the objected language.

The present application is a continuation of Application Serial No. 09/807,945 filed July 12, 2001 that has issued as U.S. Patent No. 6,7519,89. An Information Disclosure Statement PTO-1449 is filed concurrently herewith for all of the references previously considered and cited in this and the above-identified parent application, so that these references will be printed on any resulting patent.

The Office Action rejects claim 25 under 35 U.S.C. §112, second paragraph as being indefinite. Claim 25 has been amended to provide proper antecedent basis. Reconsideration and withdrawal are requested.

The Office Action rejects claims 15 through 18 and 22 through 25 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,875,322 to Sundberg ("Sundberg"). The Office Action rejects claims 19 through 21 under 35 USC §103(a) as being unpatentable over Sundberg in view of U.S. Patent No. 5,109,389 to Stenzel ("Stenzel").

Claim 15 requires that "the glass melt flows in a horizontal direction."

Sundberg provides for "eddy currents" that flow in the vertical direction, as clearly shown in Fig. 1. See col. 3, lines 15-16. Moreover, Sundberg provides for "stirring the melt in planes perpendicular to the longitudinal axis of the hearth" causing flow in a vertical direction, as clearly shown in Fig. 4. See col. 3, lines 15-16.

Moreover, Stenzel does not disclose or suggest that the glass melt flows in a horizontal direction.

Therefore, glass melt that flows in a horizontal direction as recited by claim 15 is not disclosed or suggested by Sundberg or Stenzel alone or in combination.

In addition, claim 15 is directed to a method for melting and refining a glass melt.

Sundberg provides for the melt reduction of oxides. Sundberg goes on to provide a process that is inapplicable to glass. Specifically, Sundberg teaches frequencies from 50 to 60 Hz for the inductive heating source used. See col. 3, lines 19-21. Such frequencies applied to a glass melt would lead to an electromagnetic field entering too deep into the melt creating an energy density that is too low for efficient heating.

Stenzel provides a crucible having an inductor surrounding the crucible and containing a metal or metal alloy. See col. 1, lines 7-9.

Therefore, a method for melting and refining a glass melt as recited by claim 15 is neither disclosed nor suggested by Sundberg or Stenzel alone or in combination.

Claims 16 through 21 depend from claim 15, and, thus, are also not disclosed or suggested by Sundberg or Stenzel.

Claim 22 requires that the skull channel be configured for continuous horizontal flow of the glass melt.

Again, Sundberg provides for "eddy currents" that flow in the vertical direction, as clearly shown in Figs. 1. See col. 3, lines 15-16. Moreover, Sundberg provides for "stirring the melt in planes perpendicular to the longitudinal axis of the hearth" causing flow in a vertical direction, as clearly shown in Fig. 4. See col. 3, lines 15-16.

Therefore, the skull configured for continuous horizontal flow of claim 22 is not disclosed or suggested by Sundberg.

Claims 23 through 25 depend from claim 22, and, thus, are also not disclosed or suggested by Sundberg.

Accordingly, applicant respectfully requests favorable reconsideration and withdrawal of the rejections of these claims.

The Office Action rejects claims 15 through 16 and 22 through 23 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,268,925 to Binder et al. ("Binder").

Claim 15 requires, in part, "activating the first inductive heating coil so that the glass melt flows in a horizontal direction".

Binder is directed to a method and apparatus for semi-continuous melting. Specifically, Binder discloses a sintering crust crucible 3 having a melting coil resting on a cast form 5. Crucible 3 includes an open run-out channel 6 fixed in the area of the upper edge of the crucible. See col. 4, line 61 through col. 5, line 4. The main coil structure and crucible contained therein are tilted by means of tilting device 27, which can be designed in various forms. In Fig. 1, reference number 28 designates a lift rod, 29 a drive unit, 30 and 31 represents points of attachment between the lifting device and 26 represents the point of rotation of the furnace. The amount of melt outflow can be regulated by regulating the tilting of the furnace. See col. 5, lines 38-45. Thus, Binder discloses a crucible that can be tilted to cause the melt to flow therefrom.

Clearly, the tilting of a crucible needed by Binder to cause the melt to flow does not disclose or suggest activating the first inductive heating coil so that the glass melt flows in a horizontal direction as recited by claim 15.

Furthermore, claim 15 is directed to a method for melting and refining a glass melt.

Binder provides a method of a semi-continuous melting and discharging operation. See col. 1, lines 9-10. Binder provides the melting of ceramic material by means of inductively melting

it in the high-and medium-frequency range. See col. 3, lines 36-37. Binder also provides that an open and intensively cooled run-out channel is located at the upper edge of the melting inductor and is used as the run-out device. See col. 3, lines 47-50.

Binder provides a process and device where the temperature of the melt is higher on the inflow side compared to the outflow side, which is not efficient for refining a glass melt. Thus, Binder does not disclose or suggest and is inapplicable to a method for melting and refining a glass melt as recited in claim 15.

Claim 16 depends from claims 15, and, thus, is also not disclosed or suggested.

Claim 22 requires the skull channel be configured for continuous horizontal flow of the glass melt.

Binder provides a semi-continuous melting and discharging operation where the term "semi-continuous" means that approximately 1 to 70% of the melt, especially 5 to 30% of the crucible contents, is let out of the crucible at a time in periodic intervals and after each discharge the corresponding amount of the material to be melted is resupplied and melted. See col. 1, lines 9-10 and col. 4, lines 13-18.

The semi-continuous melting by Binder does not disclose or suggest the skull channel being configured for continuous horizontal flow of the glass melt as recited by claim 22.

Claim 22 is directed to a method for melting and refining a glass melt.

Again, Binder provides a process and device where the temperature of the melt is higher on the inflow side compared to the outflow side, which is not efficient for refining a glass melt. Thus, Binder does not disclose or suggest and is inapplicable to a method for melting and refining a glass melt as recited in claim 22.

Claim 23 depends from claims 22, and, thus, is also not disclosed or suggested.

Applicant respectfully submits that the above claims are in condition for allowance. Accordingly, applicant respectfully requests favorable reconsideration and withdrawal of the rejections of these claims.

Claim 26 has been added to point out various aspects of the present application. Support for new claim 26 can be found in the specification at least at page 11, line 16.

It is believed that new claim 26 is in a condition for allowance. Claim 26 requires a skull channel with an open top and open ends. Sundberg provides a device with "round or semicircular ends" see col. 2, line 46, as clearly shown by reference numeral 2b in Fig. 2. Binder provides a crucible having closed ends, as clearly shown in Fig. 1. Stenzel provides a device having an induction melting furnace having closed ends, as shown clearly in Figs. 2a through 5. Therefore, Sundberg, Binder, and Stenzel alone or in combination do not

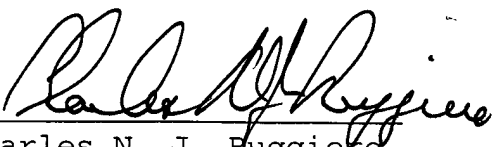
disclose or suggest the skull channel with open ends as recited by claim 26.

Claim 27 has been added to point out various aspects of the present application. Support for new claim 27 can be found in the specification at least at page 4, lines 4-7.

It is believed that new claim 27 is in condition for allowance. For example, claim 27 depends from claim 22 and therefore is believed to be in condition for allowance for at least the reasons set forth above with regard to claim 22. In addition, claim 27 requires that the skull channel have a metal-cooled cage having a plurality of water-cooled pipes being surrounded by solidified melt. Sundberg provides a hearth having a horizontal flat bottom peripherally surrounded by an upstanding vertical side wall and having round or semicircular ends, as clearly shown in Fig. 2. See col. 2, lines 40-46. Binder provides a cylindrical crucible having an open top, as clearly shown in Fig. 1. Stenzel provides a device having a cylindrical induction melting furnace having an open top, as shown clearly in Fig. 2b. Sundberg, Binder, and Stenzel fail to disclose or suggest that the skull channel have a metal-cooled cage having a plurality of water-cooled pipes being surrounded by solidified melt as recited by claim 27.

In view of the foregoing, Applicants respectfully submit that the present application is in condition for allowance. If for any reason the Examiner feels that consultation with Applicants' attorney would be helpful in the advancement of the prosecution, the Examiner is invited to call the telephone number below.

Respectfully submitted,

Date: February 16, 2005 

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